

What is claimed is:

1. A transport stream (TS) demultiplexer for demultiplexing a plurality of transport streams of data having different structures, the TS demultiplexer comprising:

a TS input switch unit selecting TS data to be processed among the plurality of TSs of data;

a packet identification (PID) filter unit extracting only packets of data having designated PIDs among the TS data selected in the TS input switch unit, and outputting the extracted packets as program data;

a descrambler unit descrambling the program data output from the PID filter unit;

an external output interface unit receiving the program data provided from the PID filter unit and the descrambler unit, selecting a desired portion of the program data from one of the PID filter unit and the descrambler, and outputting the selected program data to interface externally; and

a CPU unit controlling operation of the TS input switch unit, the PID filter unit, the descrambler unit and the external output interface unit to demultiplex the plurality of received TSs of data.

2. The TS demultiplexer of claim 1, wherein the plurality of TS data comprises at least one of an MPEG-2 TS, a distributed sample scramble (DSS) TS, a TS over an IEEE1394 bus, and a TS over a PCI bus.

3. The TS demultiplexer of claim 1, wherein the TS input switch unit detects a synchronization signal for extracting header information of a packet in the selected TS.

4. The TS demultiplexer of claim 1, wherein the external output interface unit comprises:

a first external output interface unit selecting the desired program data from one of the program data provided by the PID filter unit and program data provided by the descrambler unit and outputting the selected program data; and

a second external output interface unit grouping the program data, which is provided by the descrambler unit, into audio/video data and supplemental data, to process the audio/video data and the supplemental data, and outputting the divided data.

5. The TS demultiplexer of claim 4, wherein the first external output interface comprises:

an output switch unit selectively extracting the desired portion of the program data among a larger amount of the program data transmitted from the PID filter or from the descrambler unit; and

a post-processing unit removing a predetermined packet or replacing the predetermined packet with a new packet to change program designation information of the program data selected by the output switch unit.

6. The TS demultiplexer of claim 4, wherein the first external output interface unit externally outputs program data through at least one of an IEEE1394 bus and a PCI bus.

7. The TS demultiplexer of claim 4, wherein the second external output interface unit comprises:

a buffer temporarily storing the program data provided from the descrambler unit;

an audio/video (A/V) decoder interface unit transmitting the audio/video data among the program data stored in the buffer, to an A/V decoder; and

a peripheral interface unit externally transmitting information data other than the audio/video data among the program data stored in the buffer.

8. The TS demultiplexer of claim 1, wherein the descrambler unit scrambles the descrambled program data for external transmission.

9. The TS demultiplexer of claim 5, wherein the first external output interface unit externally outputs program data through at least one of an IEEE 1394 bus and a CPI bus.

10. The transport stream demultiplexer of claim 1, wherein the packet identification filter unit further uses a synchronization signal received from the CPU to extract scramble information from a packet header and transmits the extracted scramble information to the CPU.

11. The transport stream demultiplexer of claim 1, wherein the descrambler unit scrambles program data when scrambling is needed.

12. The transport stream demultiplexer of claim 1, wherein the external output interface unit outputs the program data after a predetermined packet has been removed therefrom or replaced with a new packet.

13. A method of demultiplexing plural transport streams of data having different structures comprising:

selecting transport stream data to be processed among the plural transport streams;

extracting packets of data having designated packet identification among the plural transport stream data, and modifying the extracted packets as program data;

descrambling a portion of the modified program data; and

externally interfacing select program data among the modified program data and the descrambled portion of the modified program data.

14. The method according to claim 12, wherein the plural transport streams of data having different structures is at least one of an MPEG-2 transport stream, a distributed sample scramble transport stream, a transport stream over an IEEE1394 bus, and a transport stream over a PCI bus.

15. The method according to claim 12, wherein the selecting transport stream data to be processed among the plural transport stream data further comprises extracting header information of a packet in the selected transport stream based upon a detected synchronization signal.

16. The method according to claim 12, wherein the externally interfacing of the select program data among the modified program data and the descrambled portion of the modified program data further comprises grouping the descrambled modified program data into audio/video data and supplemental data information to process audio/video data to be externally interfaced.

17. The method according to claim 12, wherein the externally interfacing of the select program data among the modified program data and the descrambled portion of the modified program data further comprises:

selectively extracting desired program data among a larger amount of program data including the modified program data and the descrambled portion of the modified program data; and

removing a predetermined packet or replacing the packet with a new packet to change program designation information of the program data selected to be externally interfaced.

18. The method according to claim 15, wherein the externally interfacing of the select program data among the modified program data and the descrambled portion of the modified program data further performs the operation of outputting the selected program data through at least one of an IEEE1394 bus and a PCI bus.

19. The method according to claim 16, wherein externally interfacing of the select program data among the modified program data and the descrambled portion of the modified program data further performs the operation of outputting the selected program data through at least one of an IEEE1394 bus or a PCI bus.

20. The method according to claim 15, wherein the grouping comprises:
temporarily storing descrambled modified program data;
transmitting audio/video data among the stored program data to an audio/video decoder; and
externally transmitting information data other than audio/video data among the stored program data.

21. The method according to claim 12, further comprising scrambling the descrambled modified program data for external transmission.

22. A method of demultiplexing plural transport streams of data having different structures comprising:

inputting at least a DSS transport stream and an MPEG-2 transport stream; and

simultaneously processing the DSS transport stream and the MPEG-2 transport stream.

23. The method according to claim 21, wherein said transport streams further include a transport stream received over an IEEE1394 bus and a transport stream received over a PCI bus.

24. A method of demultiplexing plural transport streams of data having different structures comprising:

selecting transport stream data to be processed among a plurality of transport stream data;

extracting packets of data having designated packet identification among the transport stream data selected, and modifying the extracted packets as program data;

descrambling a portion of the modified program data; and

displaying program data selected by a user while simultaneously transmitting the selected program data over an IEEE1394 bus.

25. A method of processing plural transport streams of data having different structures comprising:

simultaneously inputting the plural transport streams of data;

demultiplexing selected ones of the transport streams of data; and

storing the selected transport streams of data or transmitting the selected transport streams of data over an IEEE1394 bus or a PCI bus.

26. The method according to claim 24, wherein the selected transport streams are stored in a hard disk drive.